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EXAMINER	
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2863	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)
	10/574,555	ROGOLL ET AL.
	Examiner	Art Unit
	JONATHAN TEIXEIRA MOFFAT	2863

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 June 2009*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-9,11-13,15-20,22 and 23* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-9,11-13,17,20,22 and 23* is/are rejected.

7)☒ Claim(s) *15,16,18 and 19* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *25 January 2008* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

Applicant's amendments filed 6/2/2009 and 6/16/2009, in addition to a Request for Continued Examination filed 6/2/2009 are accepted and appreciated by the examiner. Applicant has canceled claims 14 and 21 and added new claims 22-23. The examiner also notes the change in power of attorney filed 5/13/2009.

The examiner further notes that in the claim amendments filed 6/2/2009, claim 20 is erroneously labeled as "Currently Amended" although no changes are present. As it is understood that this is a simple typographical error, examination is not precluded.

Examiner's Comments

In accordance with a brief telephonic discussion held with applicant's representative on 6/16/2009, the examiner understands the term "fieldbuses" as it appears in claim 1 to mean sets of cables which extend to field devices. Although it is commonly known that the term "fieldbus" refers to a communication protocol and not hardware, the examiner understands that the intention of the claim language is not that there are multiple fieldbus networks connected together at one board but that there are multiple devices physically connected together via their wires which use a fieldbus protocol for communication between them. Although clarification to the claim language would be appreciated by the examiner, the present form of the claims does not preclude understanding or examination.

Broadest Reasonable Interpretation

Applicant is reminded that during patent examination, the pending claims must be "given the broadest reasonable interpretation consistent with the specification." Applicant always has the opportunity to amend the claims during prosecution, and broad interpretation by the examiner reduces the possibility that the claim, once issued, will be interpreted more broadly than is justified. In re Prater, 415 F.2d 1393, 1404-05, 162 USPQ 541, 550-51 (CCPA 1969).

While the meaning of claims of issued patents are interpreted in light of the specification, prosecution history, prior art and other claims, this is not the mode of claim interpretation to be applied during examination. During examination, the claims must be interpreted as broadly as their terms reasonable allowed. This means that the words of the claim must be given their plain meaning. In re Zletz, 893 F.2d 319, 321, 13 USPQ2d 1320, 1322 (Fed. Cir. 1989). Further, the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See In re Van Geuns, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Claim Objections

Claim 20 is objected to because of the following informalities:

In claim 20, the word "a" should be added at the beginning of each of lines 7-10. Further, lines 11-12 stipulate that "the points are formed to inject and/or detect both common mode and differential mode signals". However, "the points" in this claim refers to "two or more.." of the group of a "common mode signal injection point, common mode signal detection point" etc. This would seem to imply that a "common mode signal injection point", for instance, can also detect differential mode signals which is not believed to be the intention of the applicant. Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

1.

Claims 1-5, 7, 11-13, 17, 20 and 22-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Davis (US pat 6564268) in view of Azarya (US pat 5978578).

With respect to claim 1, Davis discloses an apparatus comprising:

1) A monitoring transceiver means (Fig 1 item 28) connected in use to two or more of the number of fieldbuses (Fig 1 items 20, 22, 24 and 26),

2) in which each connection to a fieldbus comprises two or more signal injection and/or signal detection points, which points are collectively formed to inject and/or detect signals (Fig 1, *here, at least two points are shown at which monitoring transceiver means 28 is connected to the field devices 20, 22, 24 and 26*), and

3) which points are located between the bulk power supply (Fig 1 item 16) and a fieldbus trunk part of the fieldbus (*here, the trunk is the final connective bus component between 28 and the field devices 20, 22, 24 and 26*),

4) such that the monitoring transceiver means can detect one or more fieldbus physical layer characteristics between two of the two or more of said points (column 3 lines 25-27, *here, component 28 is discussed as performing diagnostics, see below rejection of claim 2 concerning "physical layer characteristics"*), and

5) in which the monitoring transceiver means is provided with a first digital and/or analog interface physically separate from the fieldbus trunk, and adapted to transmit diagnostic data detected by the monitoring transceiver means directly to an associated digital or analog device (column 3 lines 25-27). *Here, a user interface is disclosed which will inherently require either an analog or digital device.*

With respect to claim 1, Davis fails to disclose that:

2) Each connection to a fieldbus comprises common mode and differential mode signal injection and/or signal detection points, which points are collectively formed to inject and/or detect both common mode and differential mode signals.

Azarya teaches, with respect to claim 1:

2) Fieldbus monitoring in which each fieldbus comprises common mode and differential mode signal injection and/or signal detection points, which points are collectively formed to inject and/or detect both common mode and differential mode signals (column 15 lines 4-25). *Azarya discloses a network of components which use fieldbus protocols and which have connected bused components which perform diagnostics. Azarya further discloses HPSB which covers both synchronous and asynchronous communications and which replaces both RS-232 (common-mode) and RS-422 (differential mode) types.*

It would have been obvious to one of ordinary skill in the art at the time of applicant's invention to modify the apparatus of Davis by employing both differential and common mode signal monitoring as disclosed by Azarya. Alone, Davis discloses that the loop 12 provides DC power to field devices (column 3 lines 7-9) and also provides sufficient means for serial Manchester encoded data transmission (column 3 lines 44-53). One of ordinary skill in the art

would be aware that Manchester encoded data transmission is commonly performed differentially for noise reduction. One of ordinary skill in the art would then find obvious that the diagnostic component of Davis be so designed as to be able to evaluate the performance of both common-mode and differential-mode signals and values on the buses which connect its field devices. As in the above cited portion of Azarya, the motivation for such all-inclusive testing and maintenance is to “isolate and debug failures”. One of ordinary skill in the art would find this motivation and the inherent benefits of reduced failure, downtime and cost and increased performance to be sufficient motivation for modification of the similar apparatus of Davis.

With respect to claim 2, Davis discloses that the fieldbus physical layer characteristics comprise one or more of: over/under termination, noise/ripple level, signal level, signal bias, signal jitter, signal ringing, signal distortion, signal attenuation, cross talk, unbalance, and earth leakage (column 3 lines 25-27). *Here, at the very least the diagnostic unit 28 is inherently measuring signal level. If the measured signal is analog, the level (voltage) represents data. If the measured signal is digital, the signal level represents either a “1” or a “0” which is also data. One of ordinary skill in the art would find this property to be inherent to the diagnostic component.*

With respect to claim 3, Davis discloses that the monitoring transceiver means also detects one or more characteristics of hardware carried on the modular fieldbus board by means of one or more of said points (column 3 lines 25-27). *One of ordinary skill in the art would find this to be an inherent property. Applicant's claim 4 (as supported by the specification) further defines "characteristics of hardware" to include voltage. As above in claim 2, both analog and*

digital systems inherently detect voltage. As the voltage is generated by whichever field component controls the bus at the time, the diagnostic unit is monitoring the voltage output by that component.

With respect to claim 4, Davis discloses that the one or more characteristics of hardware comprise one or more of: voltage, short circuit, hardware module failure, quiescent current, and rate of charge (column 3 lines 25-27). *One of ordinary skill in the art would find this to be an inherent property. As above in claims 2 and 3, both analog and digital systems inherently detect voltage. As the voltage is generated by whichever field component controls the bus at the time, the diagnostic unit is monitoring the voltage output by that component.*

With respect to claim 5, Davis discloses that the monitoring transceiver means is adapted to gather received data and produce one or more of: Fourier analysis, trending analysis, and data logging (Abstract Fig 3 item 46 and Figs 5a-c). *Here, it is disclosed that diagnostic unit 28 is merely a special-purpose field device such as in figure 3. Shown in figure 3 is memory for data which implies it can log (store) such data. Further, one of ordinary skill in the art would find this functionality inherent, as the diagnostic component 28 would not be able to perform its functionality of monitoring and reporting to users (column 3 lines 25-27) if it could not log data at least temporarily.*

With respect to claim 7, Davis discloses that the first digital and/or analog interface is adapted to receive operating commands from an associated digital or analog device (column 3 lines 25-27). *This is inherent to the operations of a digital or analog interface. Inherent to the definition of "a digital interface" is that it receives digital commands and inherent to an "analog interface" is that it receives analog commands. One of ordinary skill in the art would*

be well aware that an "interface", in the realm of electronics, inherently receives signals which can be fairly called "commands" as they cause an action or processing to be performed.

With respect to claim 11, Davis discloses that the monitoring transceiver means (Fig 1 item 28) is connected to the bulk power supply (Fig 1 item 16). *The figure clearly shows them connected through bus 12 to the bulk power supply.*

With respect to claim 12, Davis discloses that one or more of the two or more signal injection and/or signal detection points are disposed within hardware carried on the board (Fig 1). *Here, each of these points is a hardwired connection point between the diagnostic component 28 and the bus component 12.*

With respect to claim 13, Davis discloses an apparatus comprising:

1) A backplane (Fig 1 item 18). *It is commonly understood to those of ordinary skill in the art that "backplane" refers to a physical component on which electronics are mounted but which performs no processing functionality. Thus the physical non-processing entity on which electronics are mounted in device 18 is its backplane.*

2) A number of fieldbuses mounted on the backplane (Fig 1 items 20, 22, 24 and 26 and Fig 3 item 50*, here the fieldbus devices are connected by the bus 12 to the host device 18 which includes a backplane*), each fieldbus includes:

2b) A connection to a bulk power supply (Fig 1 item 16 *this is a bulk power supply which is connected to field device 50 via bus 12 in Fig 3*).

2c) A power supply converter (Fig 3 item 60).

2d) A power supply conditioner (Fig 3 item 60).

2e) A fieldbus trunk (Fig 3 item 12). *The connections between device 50 and bus 12 are this device's trunk.*

3) A monitoring transceiver means (Fig 1 item 28) connected to two or more of the number of fieldbuses by means of two or more signal injection and/or signal detection points (Fig 1, *here, at least two points are shown at which monitoring transceiver means 28 is connected to field devices 20, 22, 24 and 26*).

3b) Wherein the two or more signal injection and/or signal detection points are interposed between and/or within the bulk power supply, the power supply converter, the power supply conditioner and the fieldbus trunk (Fig 3). *Here, the trunk is the final connective bus component between 28 and field devices 20, 22, 24 and 26.*

3c) Such that the monitoring transceiver means can detect one or more fieldbus physical layer characteristics (column 3 lines 25-27, *here, component 28 is discussed as performing diagnostics, see above rejection of claim 2 concerning "physical layer characteristics"*) between two of the two or more of said two or more mode signal injection and/or signal detection points (Fig 1).

With respect to claim 13, Davis fails to disclose:

3) Common mode and/or differential mode signal injection and/or signal detection points.

Azarya teaches, with respect to claim 13:

3) Fieldbus monitoring in which each fieldbus comprises common mode and differential mode signal injection and/or signal detection points, which points are collectively formed to inject and/or detect both common mode and differential mode signals (column 15 lines 4-25). *Azarya discloses a network of components which use fieldbus protocols and which have*

connected bused components which perform diagnostics. Azarya further discloses HPSB which covers both synchronous and asynchronous communications and which replaces both RS-232 (common-mode) and RS-422 (differential mode) types.

It would have been obvious to one of ordinary skill in the art at the time of applicant's invention to modify the apparatus of Davis by employing both differential and common mode signal monitoring as disclosed by Azarya. Alone, Davis discloses that the loop 12 provides DC power to field devices (column 3 lines 7-9) and also provides sufficient means for serial Manchester encoded data transmission (column 3 lines 44-53). One of ordinary skill in the art would be aware that Manchester encoded data transmission is commonly performed differentially for noise reduction. One of ordinary skill in the art would then find obvious that the diagnostic component of Davis be so designed as to be able to evaluate the performance of both common-mode and differential-mode signals and values on the buses which connect its field devices. As in the above cited portion of Azarya, the motivation for such all-inclusive testing and maintenance is to "isolate and debug failures". One of ordinary skill in the art would find this motivation and the inherent benefits of reduced failure, downtime and cost and increased performance to be sufficient motivation for modification of the similar apparatus of Davis.

With respect to claim 17, Davis discloses that each of the two or more fieldbuses (Fig 3 item 50) comprises a connection to the bulk power supply (Fig 1 item 16 *is a bulk power supply which is connected to field device 50 via bus 12 in Fig 3*), a power supply converter (Fig 3 item 60) and a power supply conditioner (Fig 3 item 60).

With respect to claim 20, Davis discloses an apparatus comprising:

1) A backplane (Fig 1 item 28). *It is commonly understood to those of ordinary skill in the art that "backplane" refers to a physical component on which electronics are mounted but which performs no processing functionality. Thus the physical non-processing entity on which electronics are mounted in device 28 is its backplane.*

2) A bulk power supply (Fig 1 item 16).

3) A plurality of fieldbuses (Fig 1 items 20, 22, 24 and 26 and Fig 3 item 50) including a fieldbus trunk (Fig 3 item 12*, here the connection to the loop bus 12 is the field device's trunk*), mounted on the backplane (*here the fieldbus devices are connected by the bus 12 to each other device, each of which includes a backplane*), and connected to the bulk power supply (Fig 1)

4) Two or more signal injection and/or detection points formed to inject and/or detect signals to each of the plurality of fieldbuses (Fig 1, *here, at least two points are shown at which monitoring transceiver means 28 is connected to field devices 20, 22, 24 and 26*).

4b) Wherein the points are interposed between the bulk power supply and the fieldbus trunk (Fig 3). *Here, the trunk is the final connective bus component between 28 and field devices 20, 22, 24 and 26.*

5) Monitoring transceiver means (Fig 1 item 28) connected to two or more of the plurality of fieldbuses by means of two or more signal injection and/or signal detection points (Fig 1, *here, at least two points are shown at which monitoring transceiver means 28 is connected to field devices 20, 22, 24 and 26*), such that the monitoring transceiver means can detect one or more fieldbus physical layer characteristics between two of the two or more of said points (column 3 lines 25-27, *here, component 28 is discussed as performing diagnostics, see above rejection of claim 2 concerning "physical layer characteristics"*).

With respect to claim 20, Davis fails to disclose:

4) A common mode signal detection point, a differential mode signal injection point, and a differential mode signal detection point, connected to each of the plurality of fieldbuses, wherein the points are formed to inject and/or detect both common mode and differential mode signals to each of the plurality of fieldbuses.

Azarya teaches, with respect to claim 20:

4) Fieldbus monitoring in which each fieldbus comprises common mode and differential mode signal injection and/or signal detection points, which points are collectively formed to inject and/or detect both common mode and differential mode signals (column 15 lines 4-25). *Azarya discloses a network of components which use fieldbus protocols and which have connected bused components which perform diagnostics. Azarya further discloses HPSB which covers both synchronous and asynchronous communications and which replaces both RS-232 (common-mode) and RS-422 (differential mode) types.*

It would have been obvious to one of ordinary skill in the art at the time of applicant's invention to modify the apparatus of Davis by employing both differential and common mode signal monitoring as disclosed by Azarya. Alone, Davis discloses that the loop 12 provides DC power to field devices (column 3 lines 7-9) and also provides sufficient means for serial Manchester encoded data transmission (column 3 lines 44-53). One of ordinary skill in the art would be aware that Manchester encoded data transmission is commonly performed differentially for noise reduction. One of ordinary skill in the art would then find obvious that the diagnostic component of Davis be so designed as to be able to evaluate the performance of both common-mode and differential-mode signals and values on the buses which connect its

field devices. As in the above cited portion of Azarya, the motivation for such all-inclusive testing and maintenance is to "isolate and debug failures". One of ordinary skill in the art would find this motivation and the inherent benefits of reduced failure, downtime and cost and increased performance to be sufficient motivation for modification of the similar apparatus of Davis.

With respect to claim 22, Davis discloses that the monitoring transceiver means is a segment autonomous diagnostic system (Fig 1 item 28). *The phrase "segment autonomous diagnostic system" has no specific or particular meaning known to those of ordinary skill in the art of fieldbus protocol. In applicant's specification it is merely stated that "a monitoring transceiver means… may also be described by those in the art as…a segment autonomous diagnostic system" offering no concrete properties to be attributed to such a component. As such, it's plain and simple meaning will be used to give the broadest reasonable interpretation. Here, the system of Davis uses segment communication (Abstract) and the diagnostic component 18 is connected in parallel with the field devices which it monitors and thusly can function autonomously from them.*

With respect to claim 23, Davis discloses an apparatus comprising:

1) A modular fieldbus board comprising a number of fieldbuses (Fig 1 items 20, 22, 24 and 26 and Fig 3 item 50) connectable to use to a bulk power supply (Fig 1 item 16).

2) The modular fieldbus board is provided with a diagnostic system (column 3 lines 25-27) comprising:

2b) A monitoring transceiver (Fig 1 item 28) means connected to one or more of the number of fieldbuses (Fig 1 items 20, 22, 24 and 26).

2c) In which each connection to a fieldbus comprises one or more signal detection and/or injection points (Fig 1, *here, at least two points are shown at which monitoring transceiver means 28 is connected to field devices 20, 22, 24 and 26*).

2d) In which said points are dispersed between locations at which the fieldbus is connectable to the bulk power supply and to a fieldbus trunk (Figs 1 and 3). *Here, the trunk is the final connective bus component between 28 and field devices 20, 22, 24 and 26.*

2e) In which the monitoring transceiver means is adapted to detect one or more fieldbus physical layer characteristics between any signal injection point and any signal detection point (column 3 lines 25-27, *here, component 28 is discussed as performing diagnostics, see above rejection of claim 2 concerning "physical layer characteristics"*).

With respect to claim 23, Davis fails to disclose that:

2c) Each connection to a fieldbus comprises one or more common mode and/or differential mode signal injection points and one or more corresponding common mode and/or differential mode signal detection points,

Azarya teaches, with respect to claim 23:

4) Fieldbus monitoring in which each fieldbus comprises common mode and differential mode signal injection and detection points, which points are collectively formed to inject and/or detect both common mode and differential mode signals (column 15 lines 4-25). *Azarya discloses a network of components which use fieldbus protocols and which have connected bused components which perform diagnostics. Azarya further discloses HPSB which covers both synchronous and asynchronous communications and which replaces both RS-232 (common-*

mode) *<u>and</u>* *RS-422 (differential mode) types. Finally, Azarya discloses both signal monitoring and component control and data rerouting which implies both detection and injection points.*

It would have been obvious to one of ordinary skill in the art at the time of applicant's invention to modify the apparatus of Davis by employing both differential and common mode signal monitoring as disclosed by Azarya. Alone, Davis discloses that the loop 12 provides DC power to field devices (column 3 lines 7-9) and also provides sufficient means for serial Manchester encoded data transmission (column 3 lines 44-53). One of ordinary skill in the art would be aware that Manchester encoded data transmission is commonly performed differentially for noise reduction. One of ordinary skill in the art would then find obvious that the diagnostic component of Davis be so designed as to be able to evaluate the performance of both common-mode and differential-mode signals and values on the buses which connect its field devices. As in the above cited portion of Azarya, the motivation for such all-inclusive testing and maintenance is to "isolate and debug failures". One of ordinary skill in the art would find this motivation and the inherent benefits of reduced failure, downtime and cost and increased performance to be sufficient motivation for modification of the similar apparatus of Davis.

2.

Claims 6 and 8-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Davis and Azarya as applied to claim 1 above, and further in view of Christensen (US pat pub 20020194547).

With respect to claim 6, Davis and Azarya fail to disclose that the monitoring transceiver means is adapted to provide an alarm in the event that received data indicates one or more of pre-determined failures has occurred on any of the two or more fieldbuses, and in which the first digital and/or analog interface is adapted to transmit said alarm directly to an associated digital or analog device.

Christensen teaches, with respect to claim 6, that the monitoring transceiver means is adapted to provide an alarm in the event that received data indicates one or more of pre-determined failures has occurred on any of the two or more fieldbuses, and in which the first digital and/or analog interface is adapted to transmit said alarm directly to an associated digital or analog device (paragraphs 0022 and 0054).

It would have been obvious to one of ordinary skill in the art at the time of applicant's invention to modify the apparatus of Davis and Azarya by employing an alarm system indicating fault as taught by Christensen. Davis discloses an alarm unit (Fig 1 item 26 and related description) capable of alerting a user and also discloses diagnostics performed on the bus system (column 3 lines 25-27) with a user interface. One of ordinary skill in the art would have found it obvious to alert a user in the case that a field device or the bus itself experiences a problem or fault. Christensen provides the motivation that such a fault alarm allows a technician to quickly locate and identify a fault (paragraph 0054). The benefit of faster repairs, shorter

downtime, and increased productivity would have been sufficient motivation to one of ordinary skill in the art to modify the similar apparatus of Davis and Azarya in order to impart these same benefits.

With respect to claim 8, Davis and Azarya fail to disclose that the monitoring transceiver means is provided with a second digital and/or an analog interface, such that diagnostic data detected and/or alarm created by the monitoring transceiver means during use are transmitted to other associated diagnostic systems.

Christensen teaches, with respect to claim 8, that the monitoring transceiver means is provided with a second digital and/or an analog interface, such that diagnostic data detected and/or alarm created by the monitoring transceiver means during use are transmitted to other associated diagnostic systems (paragraph 0022). *Multiple interfaces (12 and 14 in figure 1) are disclosed as receiving the alarm.*

It would have been obvious to one of ordinary skill in the art at the time of applicant's invention to modify the apparatus of Davis and Azarya by employing an alarm system indicating fault as taught by Christensen. Davis discloses an alarm unit (Fig 1 item 26 and related description) capable of alerting a user and also discloses diagnostics performed on the bus system (column 3 lines 25-27) with a user interface. One of ordinary skill in the art would have found it obvious to alert a user in the case that a field device or the bus itself experiences a problem or fault. Christensen provides the motivation that such a fault alarm allows a technician to quickly locate and identify a fault (paragraph 0054). Further, sending the alarm to multiple locations will allow greater access to this information. The benefit of faster repairs, shorter downtime, and increased productivity would have been sufficient motivation to one of ordinary

skill in the art to modify the similar apparatus of Davis and Azarya in order to impart the same benefits.

With respect to claim 9, Davis and Azarya fail to disclose that the monitoring transceiver means is provided with visual means adapted to display diagnostic data detected and/or alarm created.

Christensen teaches, with respect to claim 9, that the monitoring transceiver means is provided with visual means adapted to display diagnostic data detected and/or alarm created (paragraph 0054).

It would have been obvious to one of ordinary skill in the art at the time of applicant's invention to modify the apparatus of Davis and Azarya by employing an alarm system indicating fault as taught by Christensen. Davis discloses an alarm unit (Fig 1 item 26 and related description) capable of alerting a user and also discloses diagnostics performed on the bus system (column 3 lines 25-27) with a user interface. One of ordinary skill in the art would have found it obvious to alert a user in the case that a field device or the bus itself experiences a problem or fault. Christensen provides the motivation that such a fault alarm allows a technician to quickly locate and identify a fault (paragraph 0054). The benefit of faster repairs, shorter downtime, and increased productivity would have been sufficient motivation to one of ordinary skill in the art to modify the similar apparatus of Davis and Azarya in order to impart the same benefits.

Allowable Subject Matter

Claims 15-16 and 18-19 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

The prior art of record has not been found to disclose or suggest the limitations of these claims in combination with those of their parent claims.

More specifically, with respect to claims 15 and 18, the prior art has not been found to disclose the monitoring of fieldbus components in which "a first common mode signal injection and/or signal detection point is disposed between the bulk power supply and the power supply converter, wherein a second common mode signal injection and/or signal detection point is disposed between the power supply converter and the power supply conditioner, in which a third common mode signal injection and/or signal-detection point is the power supply conditioner and the fieldbus trunk, and a differential mode signal injection and/or signal detection point is disposed between the third common mode signal injection and/or signal detection point and the fieldbus trunk." As shown in the above rejections, signal detection/injection points are clearly disclosed in the prior art. However, there is no specific recitation nor motivation for one of ordinary skill in the art, to include such detection/injection points in each of the three specific positions claimed. Thusly, these claims are neither anticipated by nor obvious in view of the prior art of record.

With respect to claims 16 and 19, the prior art has not been found to disclose "a fourth common mode signal injection and/or signal detection point is disposed within the power supply

converter, and in which a fifth common mode signal injection and/or signal detection point is disposed within the power supply conditioner." As above, although signal injection/detection points in fieldbus diagnostics are clearly disclosed by the prior art of record, the four specific locations claimed here as being monitored are neither anticipated by nor obvious in view of the prior art of record.

Response to Arguments

Applicant's arguments with respect to claims 1-9 and 11-20 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JONATHAN TEIXEIRA MOFFAT whose telephone number is (571)272-2255. The examiner can normally be reached on Mon-Fri, from 7:00-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Drew Dunn can be reached on (571) 272-2312. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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